

#### REMARKS

This paper is submitted in response to the final Office Action mailed December 29, 2011. Claims 19, 21-23, 26-33, 36 and 38-42 are currently pending. Claims 19, 23, 38 and 39 have been amended. All claims stand rejected under 35 U.S.C. §103(a).

#### Description of Amendment

Each of independent claims 19, 23, 38 and 39 has been amended to include a gas turbine component comprising, made from or formed from “a nickel-based superalloy strengthened by precipitation of a gamma prime phase of the superalloy and by an addition of a strength promoter.” Support for these amendments may be found, for example, on page 3, line 15 through page 4, line 2. In addition, claims 19, 23 and 38 have been amended to remove gallium (Ga) as one of the selected strength promoters.

#### Response to Rejection Under 35 U.S.C. §103(a)

Claims 19, 21-23, 26-33, 39 and 40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Burgel (U.S. Patent No. 7,005,015) in view of Bicicchi (GB 1,534,399) or Clark (U.S. Patent No. 4,962,586) or Bodnar (U.S. Patent No. 5,108,699) or Boyle (U.S. Patent No. 3,139,337) or Darolia (U.S. Patent No. 5,116,438) or Tanaka (U.S. Patent No. 4,404,049). Claim 36 stands stand rejected under 35 U.S.C. §103(a) as being unpatentable over Burgel in view of Bicicchi or Clark or Bodnar or Darolia or Tanaka and Yoshinari (U.S. Patent No. 5,611,670). Claims 38 and 41-42 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Burgel in view of Bicicchi or Clark or Bodnar or Darolia or Tanaka and Taylor (U.S. Patent No. 3,631,674). Applicant traverses each of these rejections.

With respect to the rejection of each of independent claims 19, 23, 38 and 39, Applicant acknowledges Burgel discloses a gas turbine component, specifically a turbine blade that is made from a nickel-based superalloy. However, as the Examiner acknowledges, Burgel fails to teach the addition of a strength promoter. Accordingly, the Examiner cites secondary references, Bicicchi, Clark, Bodnar, Darolia and Tanaka as disclosing one or more of the claimed strength promoters.

However, each of the Bicicchi, Clark, Bodnar and Boyle references discloses a steel alloy or a component made from steel or stainless steel alloys that are not nickel-based super alloys. While each such reference discloses the presence of nickel in a steel alloy, the concentration of nickel is relatively small, e.g., Bicicchi (3.8% Ni), Clark (0.6% Ni), Boyle (1.2% Ni) and Bodnar (0.75% Ni). Accordingly, inasmuch as these components are not nickel-based alloys, as that term is understood in the art, precipitation of a gamma prime phase of the alloy is not present. The precipitation of a gamma prime phase is present only in nickel-based super alloys that have relatively high concentrations of nickel and aluminum with a chemical composition of the gamma prime phase being  $\text{Ni}_3\text{Al}$ .

Although Tanaka discloses a nickel-based alloy including tin, the tin is present in a much higher concentration than that claimed. Specifically, the claimed composition includes tin as strength promoter in the concentration of .005% to 0.05% wt. Tanaka discloses tin in an amount of 0.1% to 3% wt, which is at least twice the amount of the highest claimed concentration of tin as a strength promoter. In the case *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) cited by the Examiner, the Federal Circuit upheld a rejection wherein the claimed concentrations were much closer in comparison to the cited prior art. In that case, the claimed composition included 0.8% nickel, 0.3% molybdenum, up to 0.1% iron with the balance of titanium. The prior art included 0.75% nickel, 0.25% molybdenum and balance titanium, and 0.94% nickel, 0.31 molybdenum and balance titanium. In the present case, and as pointed out above, Tanaka discloses twice the amount of the highest claimed concentration of tin. In view of the above amendments and remarks, each of the independent claims is allowable over the combination of Burgel with Bicicchi or Bodnar or Boyle or Clark.

The Examiner cited Darolia as disclosing a nickel-based superalloy that is precipitation strengthened by gallium present within the claimed concentration levels. Applicant notes that claims 19, 23 and 38 have been amended to exclude gallium as a strength promoter. Accordingly, each of claims 19, 23 and 28 is allowable over the combination of Burgel and Darolia.

Conclusion

For at least the foregoing reasons, it is respectfully submitted that any objections and/or rejections set forth in the outstanding Office Action are inapplicable to the present claims. Applicant respectfully requests allowance of the pending claims. No new matter has been added. Please grant any extensions of time required to enter this paper. The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper, including fees for additional claims and terminal disclaimer fee, or credit any overpayments to Deposit Account No. 19-2179.

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